

WHAT IS CLAIMED IS

1. An electrical control unit comprising:

a communication frame creating unit for creating a communication frame to be transmitted in response to a request;

a storage unit for temporarily storing another communication frame transmitted from another electrical control unit, the another communication frame being subjected to gateway processing; and

a transmission mediating unit for alternately transmitting the communication frame created in the communication frame creating unit and the another communication frame stored in the storage unit through an externally connected bus.

2. The electrical control unit according to claim 1, wherein the communication frame creating unit sets a code representing an abnormality content detected by abnormality diagnosis and creates a communication frame corresponding to the abnormality content.

3. The electrical control unit according to claim 2, wherein the electrical control unit controls in-vehicle mount equipment mounted in a vehicle, and the communication frame creating unit sets a signal representing a state of the in-vehicle mount equipment as a message and creates a communication frame corresponding to the message.

4. The electrical control unit according to claim 1, wherein the electrical control unit controls in-vehicle mount equipment mounted in a vehicle, and the communication frame creating unit sets a signal representing a state of the in-vehicle mount equipment as a message and creates at least one communication frame corresponding to the message.

5. A control system comprising:

a first electrical control unit for responsively creating a first communication frame to be transmitted upon receiving an external request and for transmitting the first communication frame through a first bus; and

a second electrical control unit connected to the first electrical control unit through a second bus, wherein the second electrical control unit is for creating a second communication frame to be transmitted in response to the request from the exterior unit and transmitting the second communication frame through the first bus,

wherein the first electrical control unit includes a transmission mediating unit for alternately transmitting the first and second communication frame when the first electrical control unit transmits the first communication frame on the first bus at approximately a same time as the second electrical control unit transmits the second communication frame on the first bus.

6. The control system according to claim 5, wherein each of the first and second electrical control units creates the first and second communication frames based upon the external request, wherein the external request is received from an exterior unit from the first bus.

7. The control system according to claim 6, wherein each of the first and second electrical control units transmits a code representing an abnormality content detected through abnormality diagnosis as a message upon receiving the external request.

8. The control system according to any one of claim 7, wherein the first and second electrical control units are constructed as an electrical control unit for controlling the driving state of an engine of a vehicle and an electrical control unit for controlling an automatic transmission of the vehicle.

9. The control system according to any one of claims 6, wherein the first and second electrical control units are constructed as an electrical control unit for controlling the driving state of an engine of a vehicle and an electrical control unit for controlling an automatic transmission of the vehicle.

10. The control system according to any one of claim 5, wherein the first and second electrical control units are constructed as an electrical control unit for controlling the

driving state of an engine of a vehicle and an electrical control unit for controlling an automatic transmission of the vehicle.